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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,113	11/04/2005	Paolo Giordani	H 5716-I	2619
38857 7590 06/08/2010 WOODCOCK WASHBURN LLP CIRA CENTRE, 12TH FLOOR 2929 ARCH STREET PHILADELPHIA, PA 19104-2891				
EXAMINER				
ZHENG, LOIS L				
ART UNIT		PAPER NUMBER		
1793				
MAIL DATE		DELIVERY MODE		
06/08/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/531,113

**Applicant(s)**

GIORDANI ET AL.

**Examiner**

LOIS ZHENG

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 26 April 2010 has been entered.

### ***Status of Claims***

2. Claims 18, 26-27, 29 and 33-36 are amended in view of applicant's response filed 7 May 2010. New claims 37-42 are added. Claims 1-17 are canceled. Therefore, claims 18-42 are currently under examination.

### ***Status of Previous Rejections***

3. The rejection of claims 18-36 under 35 U.S.C. 103(a) as being unpatentable over Bianchi US 5,908,511(Bianchi) in view of Lee US 6,361,613 B2(Lee) as evidenced by Kool et al. US 6,833,328(Kool), and further in view of Fortunati et al. US 6,565,735 B1(Fortunati), is withdrawn in view of persuasive arguments presented in applicant's response filed 7 May 2010.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 18-21 and 23-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fortunati et al. WO 00/15880(Fortunati), as evidenced by Bianchi US 5,908,511 (Bianchi), and further in view of JP61-276999(JP'999).

Fortunati teaches a steel pickling solution comprising 20-140g/l sulfuric acid(page 4 lines 15-16), 15-80g/l of Fe(III) ions(page 4 lines 16-17), 1-20g/l of hydrofluoric acid(page 9 lines 7-8), 1-20g/l of chloride ions(page 8 lines 7-11), and hydrogen peroxide stabilizer (page 6 lines 30-32, page 7 lines 4-10).

Regarding claims 18 and 36, the amounts of sulfuric acid and Fe(III) ions in the pickling solution of Fortunati reads on the claimed amounts of sulfuric acid and Fe(III). The amounts of hydrofluoric acid and chloride ions in the pickling solution of Fortunati overlaps the claimed amounts of hydrofluoric acid and chloride ions. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed HF and Cl ion amount ranges from the disclosed ranges of Fortunati would have been obvious to one skilled in the art since Fortunati teaches the same utilities in its disclosed HF and Cl ion amount ranges.

In addition, since hydrofluoric acid complexes Fe(III) ions as evidenced by Bianchi(col. 3 lines 33-34), the examiner concludes that the pickling solution of Fortunati contains the claimed fluoride ions and/or hydrofluoric acid such that 1-100% of Fe(III) are present in the form of fluoride complexes as claimed.

However, Fortunati does not explicitly teach the claimed complex fluoro acids of Si.

JP'999 teaches adding fluorosilicate to a sulfuric acid based steel pickling solution in order to increase pickling rate (abstract). JP'999 further teaches using 10g/l and 15g/l of sodium fluorosilicate (i.e. which provides fluorosilicate anions) in Tables 1-2.

Regarding claim 18, it would have been obvious to one of ordinary skill in the art to have incorporated 10-15g/l of sodium fluorosilicate of JP'999, which provides 53.2-79.3mmol/l of fluorosilicate anions, into the pickling solution of Fortunati in order to increase the pickling rate as taught by JP'999.

Regarding claim 19, the Fe(III) concentration in the pickling solution of Fortunati in view of JP'999 reads on the claimed Fe(III) concentration. Even though Fortunati in view of JP'999 teaches a fluorosilicate concentration that is lower than claimed, the teaching of JP'999 shows that the concentration of fluorosilicate salt is a result effective variable because it affects of pickling rate. Therefore, one of ordinary skill in the art would have found it obvious to have varied the concentration of the fluorosilicate salt via routine optimization in order to achieve desired pickling rate.

Regarding claim 20, Fig. 5 of Fortunati appears to show a redox potential that overlaps the claimed redox potential. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed redox potential from the disclosed potential of Fortunati would have been obvious to one skilled in the art since Fortunati teaches the same utilities in its' disclosed redox potential range. Alternatively, since Fortunati in view of JP'999 teaches a pickling solution that is substantially similar to the claimed pickling solution, one of ordinary skill in the art would have expected

substantially similar redox potential as claimed in the pickling solution of Fortunati in view of JP'999.

Regarding claim 21, Fortunati teaches the claimed sulfuric acid.

Regarding claim 23, the teachings of Fortunati in view of JP'999 discloses a steel pickling process comprising the claimed pickling solution contacting and redox potential managing steps.

Regarding claim 24, Fortunati further teaches that is pickling process is a continuous process performed electrolytically (page 4 lines 26-30), which implies the claimed relative movement between the pickling solution and the steel surface.

Regarding claim 25, Fortunati further teaches the claimed formation of Fe(II) ions and its at least partial oxidation to Fe(III) (page 6 lines 25-32).

Regarding claim 26, the instant claim is rejected for the same reasons set forth in the rejection of claims 18 and 23 above.

Regarding claim 27, Fortunati does not teach other oxidizing agent than Fe(III).

Regarding claim 28, the chloride ions concentration in the pickling solution of Fortunati overlaps the claimed chloride ions concentration range. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed Cl ion concentration range from the disclosed range of Fortunati would have been obvious to one skilled in the art since Fortunati teaches the same utilities in its disclosed Cl ion concentration range.

Regarding claims 29-30, the instant claims are rejected for the same reasons set forth in the rejection of claims 20 and 23-24 above.

Regarding claim 31, Fortunati further teaches that the preferred concentration range for Fe(III) ions is 20-50g/l(page 4 line 17), which reads on the claimed Fe(III) ion concentration. In addition, the HF concentration in the pickling solution of Fortunati overlaps the claimed HF concentration range. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed HF concentration range from the disclosed range of Fortunati would have been obvious to one skilled in the art since Fortunati teaches the same utilities in its disclosed HF concentration range.

Regarding claims 32-33 and 35, the instant claim is mostly rejected for the same reasons set forth in the rejection of claims 18 and 23 above. In addition, Fortunati teaches the claimed rinsing of the pickled steel surface(page 9 line 14) and that its pickling process can be applied to stainless steel surface(page 1 line 5).

Regarding claim 34, Fortunati further teach teaches a preferred sulfuric acid concentration of 40-100g/l(page 4 lines 16), which reads on the claimed strong acid concentration range. In addition, Fortunati further teaches that hydrogen peroxide may be present in a concentration of 3-20g/l(claim 16).

Regarding claims 37-42, the instant claims are rejected for the same reasons set forth in the rejection of claim 18 above. In addition, due to the presence of HF, the pickling solution of Fortunati in view of JP'999 would have had at least some free fluoride ions as claimed.

6. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fortunati and further in view of JP'999, and further in view of Bianchi.

The teachings of Fortunati in view of JP'999 are discussed in paragraph 5 above. However, Fortunati in view of JP'999 do not explicitly teach the claimed pickling solution is in the form a gel or a paste.

Bianchi teaches a steel pickling solution comprising sulfuric acid, hydrofluoric acid, Fe(III) ions, and hydrogen peroxide stabilizer(col. 3 lines 27-60 and col. 4 lines 13-19). Bianchi further teaches that the pickling solution further comprises organic material such as non-ionic surfactants acting as wetting agents, emulsifiers, etc. to improve pickling(col. 5 lines 53-62).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated organic additives such as wetting agents and emulsifiers as taught by Bianchi into the pickling solution of Fortunati in view of JP'999 in order to improve pickling as taught by Bianchi. Based on the broadest reasonable interpretation, the emulsifier containing pickling solution of Fortunati in view of JP'999 and Bianchi is in the form of a gel or a paste as claimed.

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 18-36 filed 7 May 2010 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOIS ZHENG whose telephone number is (571) 272-1248. The examiner can normally be reached on 9:00am - 5:30pm.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

LLZ